UNIVERSITI TEKNOLOGI MARA

CSC186: OBJECT ORIENTED PROGRAMMING

Course Name (English)	OBJECT ORIENTED PROGRAMMING APPROVED
Course Code	CSC186

MQF Credit	4

Course Description	This course will emphasis on solving simple to more complex problems using a programming language that supports Object-Oriented programming. The main concepts of Object-Oriented programming are discussed. Principles and techniques taught will include objects and classes, abstraction, encapsulation, inheritance and polymorphism. Students will also be taught on how to model the solution using UML design prior to development process.

Transferable Skills	1. Demonstrate practical skills on modeling solutions to problems. 2. Demonstrate teamwork skills in developing a solution to a problem. 3. Demonstrate ability to gain knowledge and information, and use scientific skills in solving problems.

Teaching Methodologies	Lectures, Blended Learning, Lab Work

CLO	CLO1	Identify OOP application model as proposed solutions based on the given tasks using UML
	CLO2	Develop the application of OOP features on the given topics which perform in a teamwork
	CLO3	Apply the main characteristics of OOP concept to professionally relate solutions to the real world problems
	CLO4	Demonstrate a simple program individually using OOP features based on the information gained

Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to OOP 1.1) Programming basics 1.2) Introduction to objects & classes 1.3) Elements of an object - attribute, behavior, state 1.4) Characteristics of oop - abstraction (basic concept, process abstraction, data abstraction), encapsulation, inheritance, polymorphism
2. Basic OO Design using UML 2.1) Use Case diagram and Use Case scenarios 2.2) Class diagram 2.3) OOSE life cycle
3. Concepts of classes 1 3.1) Class concept 3.2) Data members 3.3) Basic types of methods 3.4) Object creation & application 3.5) Class vs object 3.6) Message passing
4. Concepts of classes 2 4.1) Data members of type array 4.2) Array of objects 4.3) Method overloading 4.4) Objects as parameters & method type 4.5) Composite objects

5. File Input output 5.1) Basic concepts of the file input/output 5.2) Opening and closing files 5.3) Storing and retrieving data using OOP 5.4) File and exceptions
6. Inheritance 6.1) Basic concept (single vs multiple inheritance) 6.2) Generalization & specialization 6.3) Class Object 6.4) Access levels 6.5) Array of subclasses
7. Polymorphism 7.1) Basic concept 7.2) Abstract classes and methods 7.3) Method overriding 7.4) Concrete subclasses and methods

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Case Study	Case Study	10%	CLO4
	Group Project	Group Project	15%	CLO2
	Practical	Practical	5%	CLO1
	Quiz	Quiz	5%	CLO3
	Test	Test	15%	CLO3

Reading List	Recommended Text	Tony Gaddis 2018, *Starting Out with Java*, 7 Ed., Pearson [ISBN: 0134802217]
	Reference Book Resources	• Joyce Farrell 2018, *Java Programming*, 9 Ed., Cengage Learning [ISBN: 1337397075]
		• Y. Daniel Liang 2017, *Introduction to Java Programming and Data Structures*, 11 Ed., Pearson [ISBN: 0134694511]
		• Neha Kaul 2017, *Object Oriented Programming with Java*, Arcler Press [ISBN: 1773612085]
		• Cay S. Horstmann 2015, *Big Java*, 5 Ed., Wiley [ISBN: 1119221978]
		• Mark Lassoff 2017, *Java Programming for Beginners*, Packt Publishing [ISBN: 9781788296298]
		• Paul Deitel,Harvey Deitel 2014, *Java How to Program (Early Objects)*, 10 Ed., Prentice Hall [ISBN: 9780133807806]
		• Joyce Farrell 2015, *Java Programming*, 8 Ed., Cengage Learning [ISBN: 9781285856919]
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	